

## **CLAIMS**

1. A method of communicating over an air interface comprising:  
transmitting information over a shared wireless channel by varying at least one of a time span and a bandwidth.
2. The method of Claim 1, wherein the at least one of time span and bandwidth is varied as a function of a channel quality of a wireless receiver.
3. The method of Claim 2, wherein the channel quality comprises at least one of a signal to noise ratio, a bit error rate, a frame error rate and a power loss of a wireless link between the wireless receiver and a wireless transmitter.
4. The method of Claim 2, wherein the channel quality comprises at least one of interference from information transmitted to at least one other wireless receiver, background noise and thermal noise.
5. The method of Claim 2, further comprising the step of transmitting a signal corresponding with a transmission format to be employed in the information to be transmitted.
6. The method of Claim 5, wherein the signal comprises a bit sequence corresponding with at least one of the varied time span and the varied bandwidth.

7. The method of Claim 6, wherein the transmitting a signal comprises:
  - determining the transmission format; and
  - 5 recalculating the transmission format if the time span is greater than an information payload to be transmitted divided by a data rate of the wireless receiver.
8. The method of Claim 6, wherein the transmitting a signal comprises:
  - determining the transmission format; and
  - 5 recalculating the transmission format using a duty cycle if the time span is greater than an information payload to be transmitted divided by a data rate of the wireless receiver.
9. The method of Claim 8, wherein the duty cycle is determined by dividing the information payload by the product of the data rate and the time span.

10. A method of communicating over an air interface comprising:  
receiving information over a shared wireless channel by varying at least one of a time span and a bandwidth.

11. The method of Claim 10, wherein the at least one of time span and bandwidth is varied as a function of a channel quality of a wireless receiver.

12. The method of Claim 11, wherein the channel quality comprises at least one of a signal to noise ratio, a bit error rate, a frame error rate and a power loss of a wireless link between the wireless receiver and a wireless transmitter.

13. The method of Claim 11, wherein the channel quality comprises at least one of interference from information transmitted to at least one other wireless receiver, background noise and thermal noise.

14. The method of Claim 11, further comprising the step of receiving a signal corresponding with a transmission format to be employed in the information to be transmitted.

15. The method of Claim 14, wherein the signal comprises a bit sequence corresponding with at least one of the varied time span and the varied bandwidth.

16. The method of Claim 15, wherein the receiving a signal comprises:

determining the transmission format; and

5 recalculating the transmission format if the time span is greater than an information payload to be transmitted divided by a data rate of the wireless receiver.

17. The method of Claim 15, wherein the receiving a signal comprises:

determining the transmission format; and

5 recalculating the transmission format using a duty cycle if the time span is greater than an information payload to be transmitted divided by a data rate of the wireless receiver.

18. The method of Claim 17, wherein the duty cycle is determined by dividing the information payload by the product of the data rate and the time span.

19. A method for allocating the resources of a wireless base station comprising:

allocating a shared wireless channel between at least two mobile communication devices by varying at least one of a time span and a bandwidth for each downlink transmission in response to a channel quality of a wireless receiver.

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